

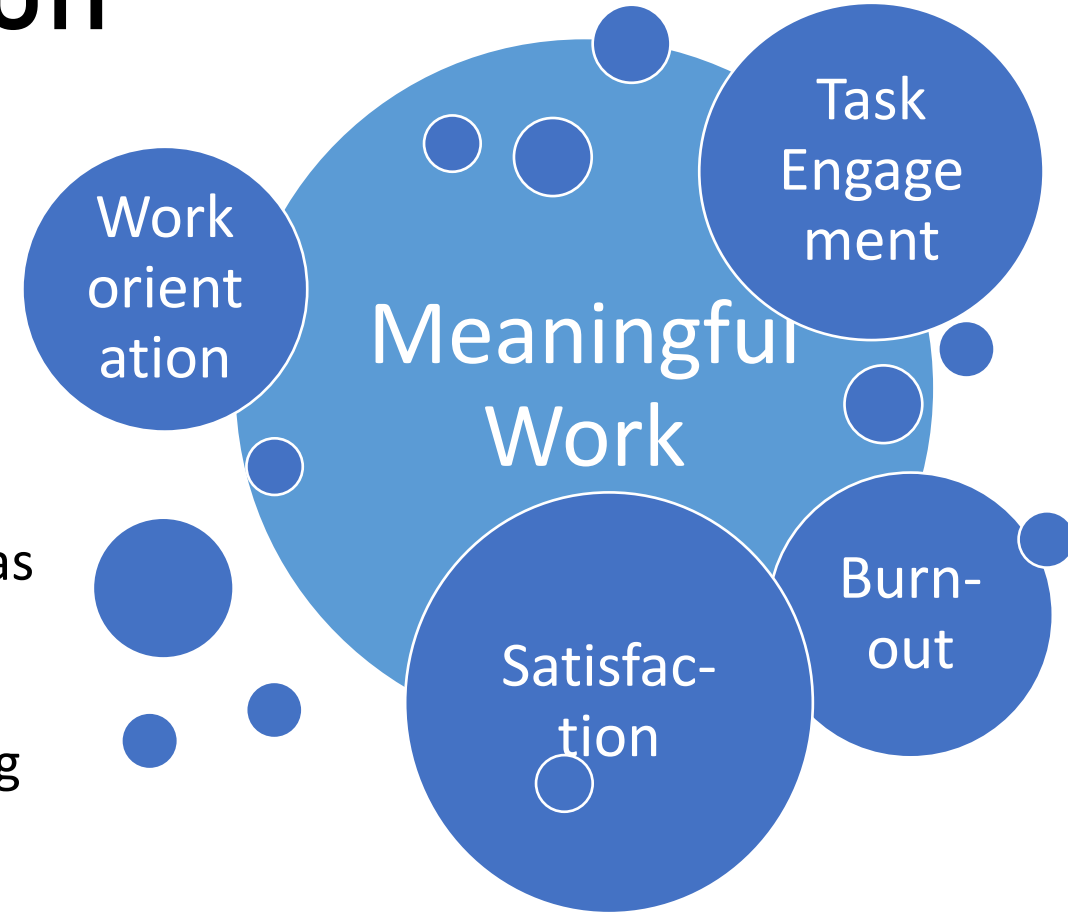
DEVELOPING A MEASURE OF MEANINGFUL WORK IN ISOLATED AND CONFINED ENVIRONMENTS

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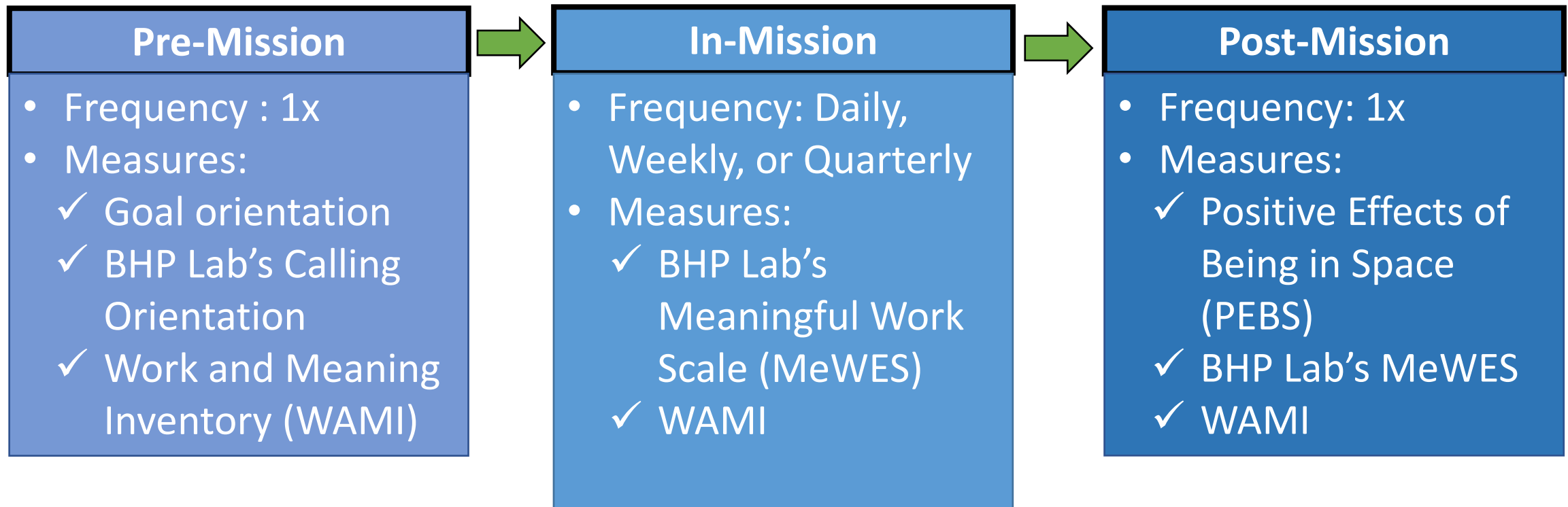
Introduction

- Long-duration space exploration missions (LDSEM) will have stressors such as prolonged isolation and confinement
- Meaningful work may serve as a countermeasure in mitigating harmful effects of stress
- The Meaningful Work and Enjoyment Scale (MeWES) was designed to inform countermeasure development
- The MeWES consists of 25 items pulled from pre-existing measures that assess constructs such as:
 - Meaningfulness
 - Thriving
 - Engagement



Method

- Data have been collected from 38 individuals across 2 spaceflight analogs
 - **HERA** (Human Exploration Research Analog; NASA JSC) 45 days isolation period, n=20 currently
 - **Neumayer** (Antarctica) 7 months isolation period, n=18 currently
 - **ICARUS** (*Isolation and Confinement Analog Research Unit for Spaceflight; UPenn*) 7 days isolation period



Item and Scale Properties

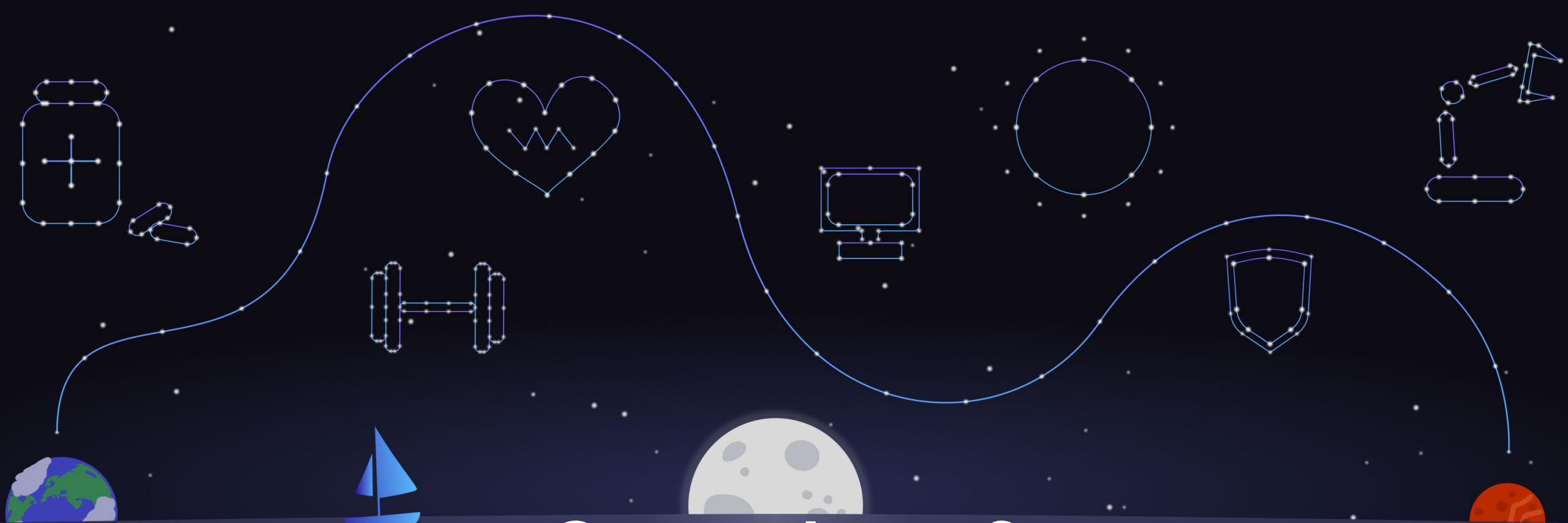
- Cronbach alpha = .87 (good)
 - Items, if removed, would increase reliability coefficient:
 - Item 9 ["I feel used up at the end of the workday." (reversed)] (from $\alpha = .87$ to .89)
- Item-total correlations low ($< .15$) or negative:
 - Item 9 (-.20) ["I feel used up at the end of the workday." (reversed)]
 - Item 17 (.10) ["I am often able to complete a whole task from beginning to end, even if it is not done at one time."]
- Items with response frequency concerns:
 - Item 11 had a restricted range of 2 (minimum: 5 and maximum: 7) on the Likert response scale ["In my opinion, I am good at my job."]
- Moderate to High-Magnitude Correlations with Relevant Scales:
 - Pre-mission: Calling – Craftmanship, Calling – Servant, Goal Performance – Approach
 - Post-mission: WAMI – Positive; WAMI – Greater Meaning, WAMI – Meaning Making, PEBS – PCST, PEBS- Daily Life, PEBS – Earth, PEBS – Space

Principle Components Analysis (PCA)

- PCA identified 7 components:
 1. Meaningfulness/Thriving
 2. Job Design (Crew/Team)
 3. Job Design (Task/Bigger Picture)
 4. Thriving/Satisfaction
 5. Boredom/Cynicism
 6. Professional Efficiency/Competence
 7. Overcoming Challenges
- Items that displayed issues in the PCA were:
 - Item 9: highest loading was .246 (low) ["I feel used up at the end of the workday." (reversed)]
 - Item 19: only item in its own factor/component (Overcoming Challenges) ["I have overcome challenges in my work."]
 - Item 23: many cross-loadings rather than one prominent factor/component ["I am not given an explanation of why or the big picture when told to do my tasks."] (reversed)

Summary/Future Work

- The MeWES scale shows promise in measuring meaningful work
- Scale may be enhanced by removing items with poor statistical properties
- We continue to collect data in current and future missions, and will explore fluctuations in aspects of meaningful work across time in analog environments
- We will explore individual differences and how they relate to the specific work tasks that individuals find meaningful
- Ultimately, the MeWES could help with risk reduction efforts and/or countermeasure development



Questions?

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